(1) Rights and responsibilities to workers
(2) Medical surveillance
(3) Hazard recognition
(4) Toxicology
(5) Emergency controls
(6) Safe work practices
(7) Safe use of field equipment
(8) Personal protective equipment
(9) Safe sampling technologies
(10) Groundwater principles and monitoring considerations
(11) Emergency procedures
(12) Transporting hazardous wastes
(13) Decontamination
(14) Site safety plan

Like most multi-authored books, the chapters of this book are of variable quality but due to good editing, they are of consistent format. I very much like the specification of objectives at the beginning of each chapter, i.e. what you should learn by reading the chapter given.

Perhaps it's my narrow personal interest, but I found the chapter on 'Hazard Recognition' well written and as comprehensive as warranted in a book of this type (spanning over 50 pages). That was not my assessment of the short (20 pages) Toxicology chapter. Toxicology is a topic we engineers need much more exposure to and much more than can be covered adequately in 20 pages of explanation and examples. In that chapter, I was distressed by the incompleteness of the references as well as their limited number (five).

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Principles of Air Pollution Meteorology, by Tom Lyons and Bill Scott, CRC Press Inc., Boca Raton, FL, 1990, ISBN 0-8492-7106-6, 224 pp., $ 39.95 (Northern America) and $ 47.00 (outside).

With the passage of the Clean Air Act amendments in the United States, activities related to air pollution meteorology will continue to increase. The book by Lyons and Scott is a useful addition to the existing literature [1–4] on this subject.

The book is divided into five chapters:
(1) Introduction
(2) Atmospheric boundary layer
(3) Atmosphere diffusion
(4) Pollutants and their properties and
(5) Environmental monitoring and impact.

An extensive list of references is given at the end of the book. Most of the references are journal papers, books and U.S.A. (EPA) reports. Some references to reports and can be replaced by papers in the next edition of the book.

A brief introduction on air pollution meteorology is given in Chapter 1. Cause and effect relationship is also discussed. Chapter 2 covers the fundamental concepts to understand atmospheric boundary layer. Topics such as radiation, atmospheric stability, turbulence, wind profile and statistical measures are discussed in the chapter. Recent work on boundary layer scaling is also included.

Atmospheric diffusion is covered in Chapter 3. The authors start their discussion with the convective–diffusion equation and get into the derivation of gaussian models used in air pollution. Recommendations from the American Meteorological Society meeting on σ_y and σ_z are given. Plume rise equations are listed. Models for lake shore fumigation, indoor air quality and K-theory are discussed. Explanations are also given on pollutant removal mechanisms.

The chemistry side of atmospheric diffusion is briefly discussed in Chapter 4. Residence time and reaction rates are defined. Properties of sulfur compounds, nitrogen compounds, carbon compounds, organic compounds and aerosols are given.

The last chapter presents air monitoring, effects of pollutants, pollution indices and environmental assessment. These topics are of practical interest.

The appendix provides a brief description on the U.S. EPA models. In the next edition of the book the list of models should be revised based on current information available from the U.S.EPA bulletin board. There are some typographical errors which are obvious. The book can be read easily most of the time. However, some thinking may be required to follow the presentation of derivations.

The book is useful for scientists who are interested in understanding the theoretical framework developed during 1970s and 1980s behind air quality models. The book can be used in a graduate level course on atmospheric diffusion.

References

1 F. Pasquill, Atmospheric Diffusion, Ellis Horwood, Chichester, 1974, 429 pp.
2 S.R. Hanna, G.A. Bruggs and R.P. Hosker, Handbook on Atmospheric Diffusion, U.S. DOE, 1982, 102 pp. (available from NTIS as DOE/TIC-11223).
31 Atmospheric Science and Power Production, U.S. DOE, 1984 (available from NTIS as DOE/TIC-27601).
41 P. Zannetti, Air Pollution Modeling, Van Nostrand Reinhold, New York, NY, 1990, 437 pp.

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